CONCEALITE
LIFE SAFETY PRODUCTS
www.Concealite.com

202 Elk Street, PO Box 160
Elkton, SD 57026
Customer Service: (605) 542-4444
Sales: (605) 633-9116
Fax: (605) 542-3333

CONCEALED EMERGENCY LIGHTING, F5000 SERIES

Model F5000

Standard, SD and RT

INSTALLATION INSTRUCTIONS

Product Features

AC Supply Voltage	120VAC or 277VAC (+/- 10%)
Power Consumption	Maximum 23w
Power Options:	Standard, Self-Contained Battery Backup **EM** = 90 min, **EM2** = 2 hrs, **EM4** = 4 hrs
Recharge:	48 Hours for full charge from 87.5% battery voltage. Continuous automatic float-charge after full charge is restored.
Charger Type:	Solid state, full-wave silicone diode rectification, integrated circuit voltage regulation.
Transfer Means:	Transfer circuit energizes lamps on loss of AC.
Status Indication:	Pilot light shows AC is available and charger is in operation.
Test Means:	Pushbutton switch simulates AC failure to test transfer function, battery and lamp readiness and charger response to battery discharge.
Lighting Head:	358-degree universal swivel rotation. 180-degree tilt position adjustment.

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Important Safeguards
Read and Follow All Safety Instructions

- ✓ Do not use outdoors.
- ✓ Do not let power cords touch hot surfaces. Do not mount units where they will be exposed to direct sunlight, radiators, gas or electric heaters. Prolonged exposure to temperatures exceeding 95 degrees Fahrenheit may reduce battery life and void warranty.
- ✓ Failure to fully charge the batteries within 120 days from receipt will void the warranty on the batteries.
- ✓ Use caution when servicing batteries. Battery acid causes burns to skin and eyes. If acid is spilled on skin or in eye, flush with fresh water and contact a physician immediately.
- ✓ Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- ✓ **CAUTION:** Halogen or LED lamps are used in this equipment. To avoid shattering, do not operate lamp in excess of rated voltage, protect lamp against abrasion, scratches and liquids when lamp is operating. Dispose of lamp with care.
- ✓ Halogen or LED lamps operate at high temperatures. Do not store or place flammable materials near lamps.
- ✓ The use of accessory equipment not recommended by the manufacturer may cause unsafe conditions and void all warranties.
- ✓ Do not use this equipment for other than intended use.
- ✓ Qualified service personnel should perform servicing of this equipment.

Failure to follow published installation instructions or any modifications to the product may damage the unit and will void the warranty.

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WARNING! To avoid fire, shock/electrocution, or injury … **TURN OFF POWER** at circuit breaker or fuse and test to ensure that power is off before wiring. Remove and discard the packaging materials.

Begin Installation

This unit is designed for recessed mounting into gypsum board, or plaster, walls and/or ceilings. (Surface mounted is designated with suffix SM). Locate unit within area to best maximize lighted area under anticipated conditions. FMS (Frameless Mounting System) option STOP RIGHT HERE AND REVIEW FMS INSTUCTIONS!

Step #1: Back Box Installation

The recessed back box is standard. If your installation requires the Surface Mount or Retrofit back box, please refer to the separate instructions for back box installation. Back box is designed for recessed mounting in gypsum board, or plaster, walls and/or ceilings. The mounting contact area of the wall or ceiling must be straight, without deformity. When used in plaster wall or ceiling, install plaster trim option. (See plaster trim instructions). **Note:** Plaster trim is used only on plaster and is not needed for gypsum board installation.

1. Securely fasten back box to stud, joist or blocking material using tabs at top and bottom of back box with screws (not furnished).
2. **Wall Mounting:** Mount with knockouts at top end.
3. **Ceiling Mounting:** Mount with opening of back box downwards. When mounting in grid ceiling, see T-Bar installation instructions.

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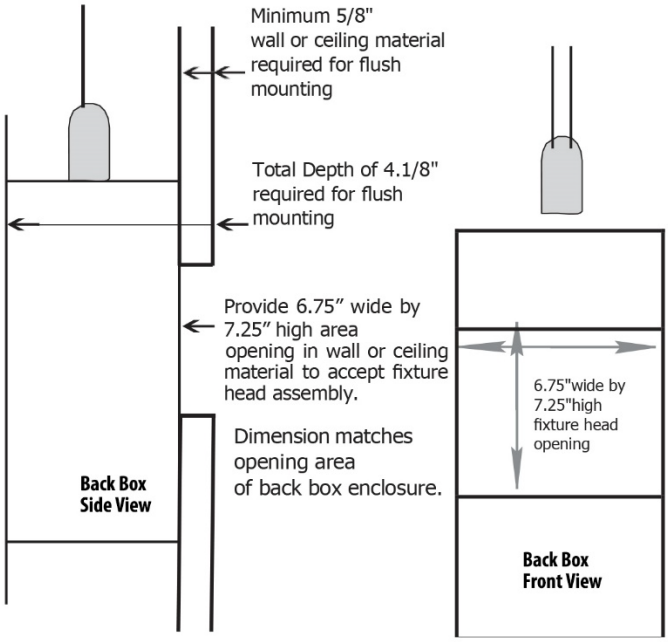
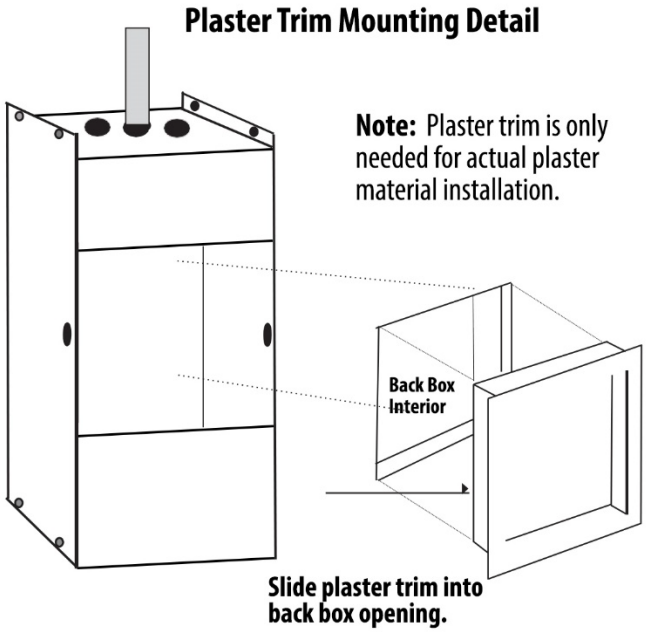
4. Route branch circuiting in metallic raceway. Securely terminate into enclosure by KO's provided.
5. Install gypsum board, plaster, wall, or ceiling material.
6. Provide a 6.75" wide by 7.25" high opening in wall or ceiling material to accept fixture head assembly. Dimension matches opening area of back box enclosure.





Step #2: Branch Circuit Installation

1. Determine the fixture type (Standard, SD, or RT).
2. Verify primary input voltage as either 120VAC or 277VAC. **Note:** The BLACK and ORANGE wires are NEVER used together in the same application. Always cap the unused wire.
3. Provide each unit with a single unswitched supply from (normal power) 120 VAC/277 VAC branch circuit used for normal lighting in the area to be illuminated. The wiring should be a permanent installation using metal enclosed wiring raceway. A 13/16" diameter knockout is provided on the top of the recessed or retrofit back box.

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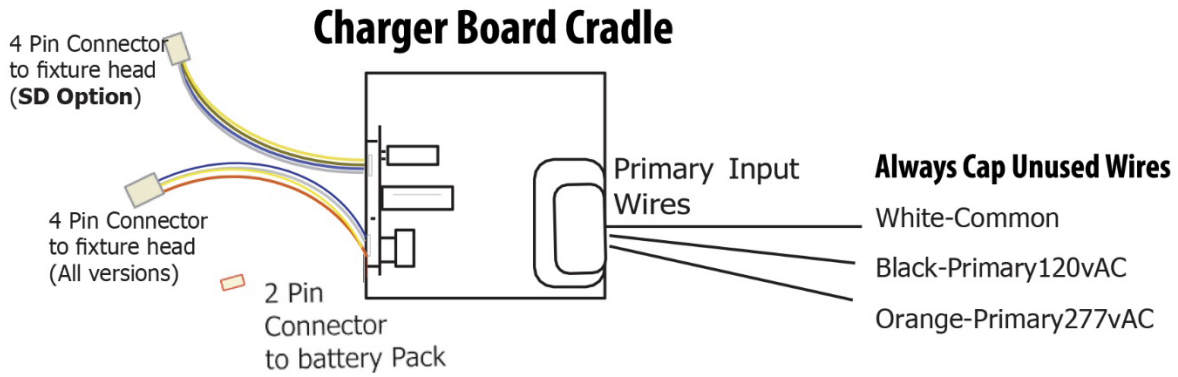
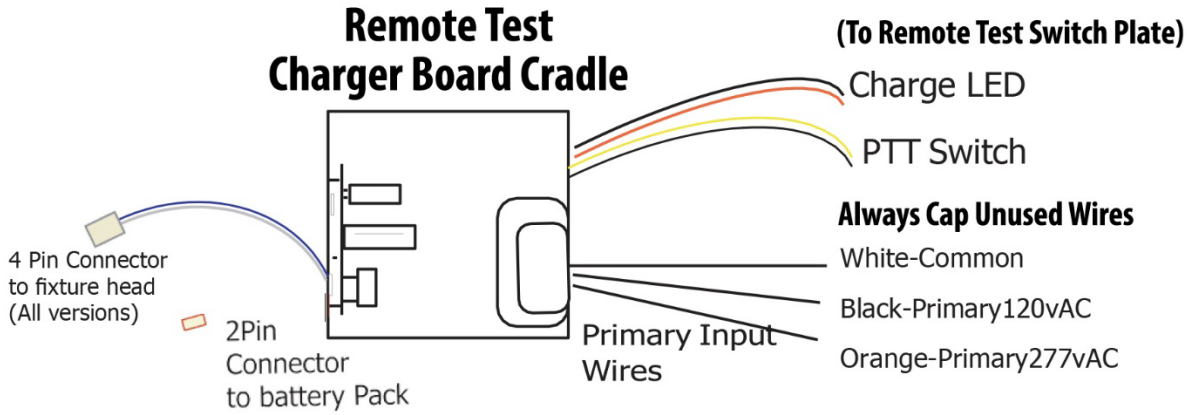
4. **Remote Test (RT) Version:** Review voltage drop table to determine appropriate wire gauge requirements for the distance between switch plate and fixture. Run wires from Remote Test Switch Plate through the top of the back box and make connections to the corresponding wires on the charger board cradle. Each Remote Test Switch will control only one emergency lighting unit. **Note:** Remote test switch is normally a closed switch; if you have an erratic connection, the fixture will not CHARGE.
5. Verify all connections.



NOTE: The Black & Orange wires are NEVER used together in the same application.



NOTE: The Black & Orange wires are NEVER used together in the same application.

Each Remote Test Switch will only control one emergency lighting unit.

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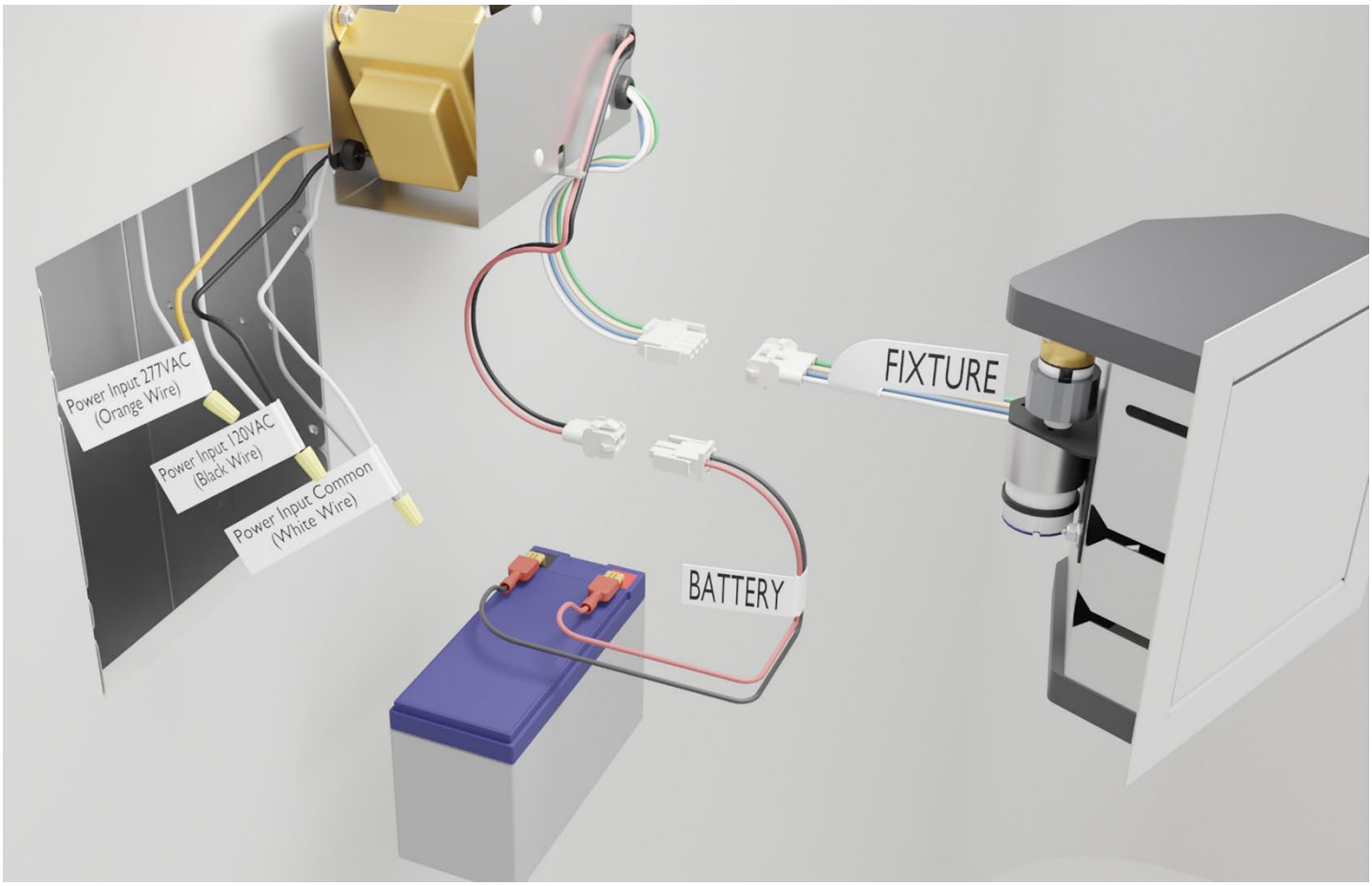
Step #3: Charger Board Installation

Carefully slide charger board into the top of the back box. Place tab in back box lance.

Step #4: Battery Installation

1. Slide the battery pack into the bottom of the back box enclosure. ALWAYS USE HANDLE ON BATTERY BACKING to move & install battery pack.
2. On a multiple battery pack, with the sheeting toward you grip the handhold and flex sheeting outward to assist in placing the battery pack into the back box enclosure.
3. Connect the 2-pin connector (labeled battery) from the charger board to the battery pack.



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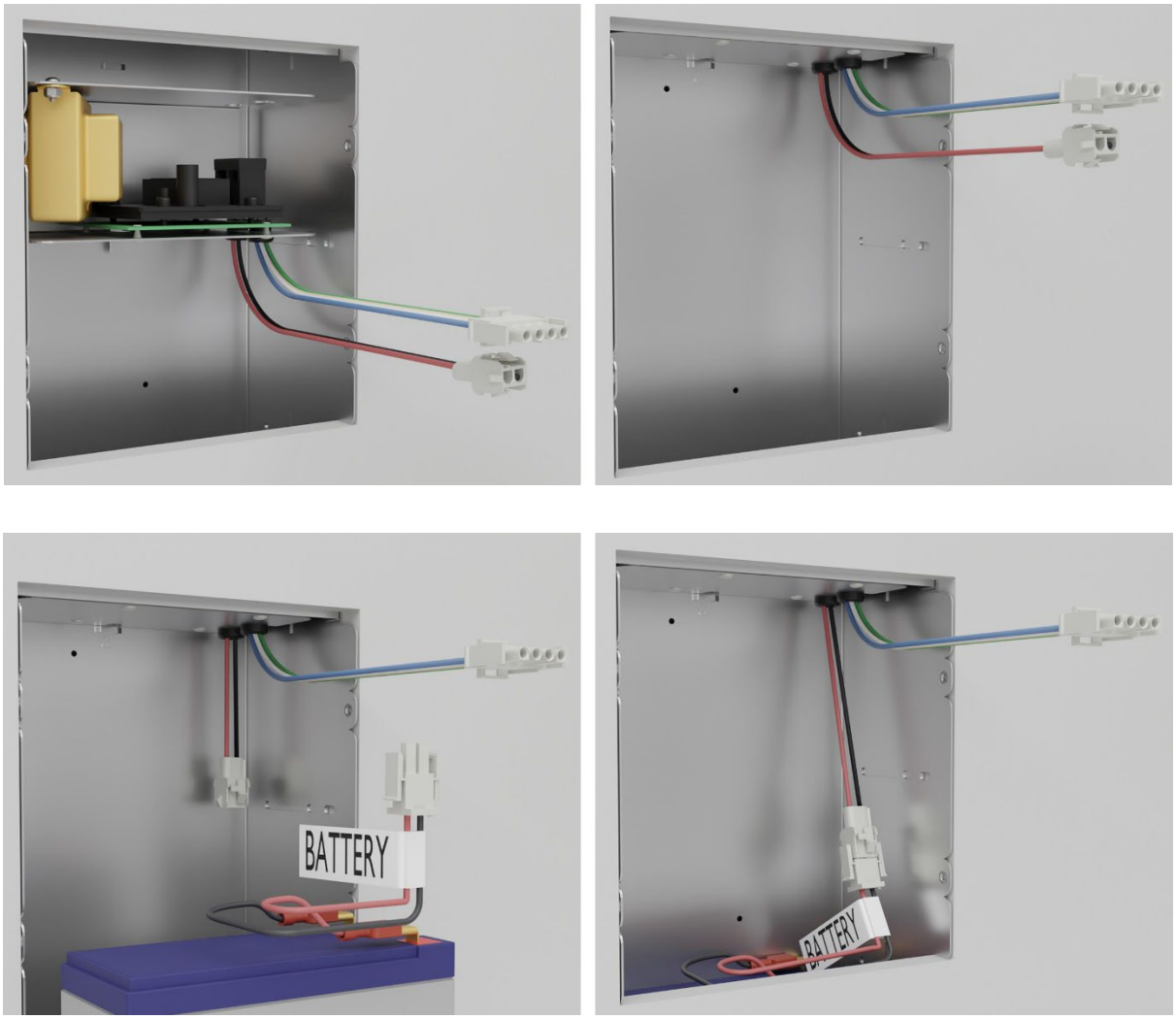

Step #5: Fixture Head Installation

Connect the 4-pin Molex connector from the charger board to the connector on the fixture head.

Step #6: Fixture Head Mounting

1. Install and adjust side mounting brackets for 5/8" or 1-¼" thickness of gypsum board wall or ceiling materials with the four(4) #8-32 nuts provided.
2. Insert two (2) of the four (4) side mounting bolts into the adjustment brackets, into the staggered positions, as shown in illustration.

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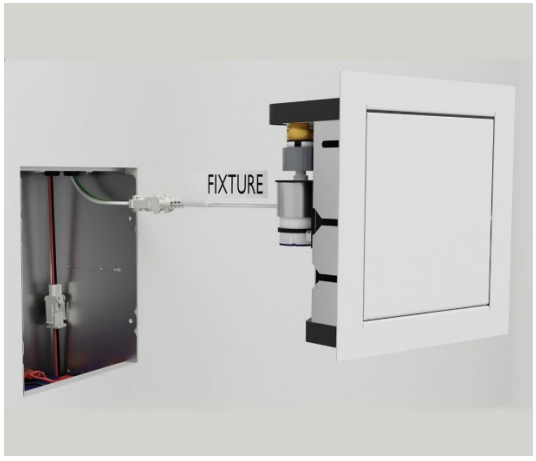
3. Connect the fixture head assembly 4-pin cable connector into the matching power supply connector.
4. Insert the fixture head into the recessed back box opening while aligning the first two (2) mounting bolts into the fixture head guide slots until it reaches the final flush mounted position.
5. Manually rotate the rotating door to the open position. Locate and securely fasten the first two (2) fixture head mounting bolts.
6. Insert the remaining two (2) of the four (4) fixture head mounting bolts into the fixture head assembly and securely fasten.
7. Release the door to allow it to rotate to the closed position.



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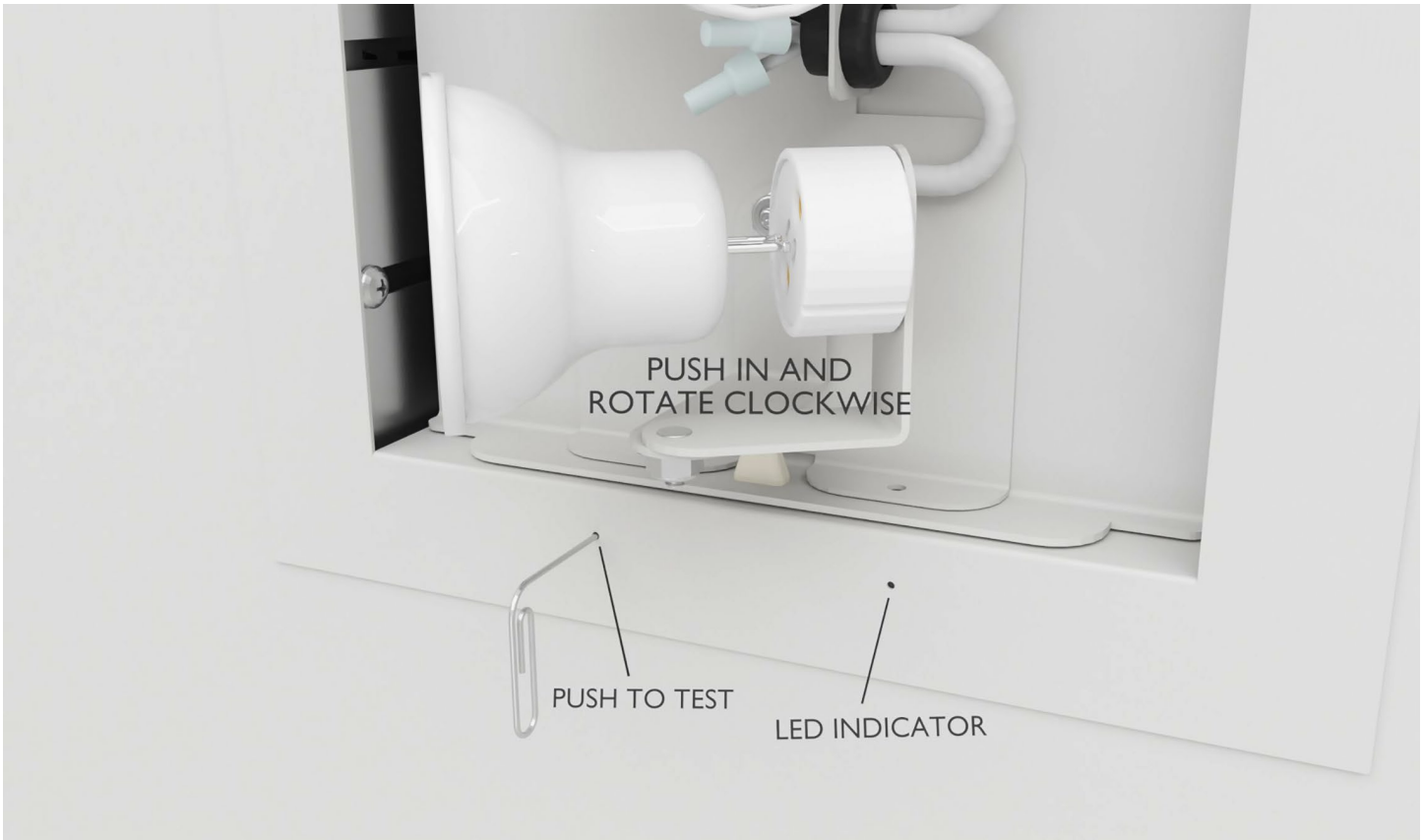

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Step #7: Lamp Installation

Insert the locking bi-pin lamps by inserting the lamp into the lamp socket and rotate clockwise until it locks into place. Verify lamps are properly turned into sockets.

Step #8: Energize

Energize primary branch circuit.

Step #9: Charge

Allow the fixture to charge for a minimum of 48 hours (longer for multiple battery packs) prior to testing. Verify that the branch circuit supply to the fixture is not interrupted.

Troubleshooting: Symptoms and Possible Corrective Measures

- ***Unit does not operate when power is lost, or test switch is depressed.***

1) Verify that the AC power is energized to the unit.
2) Verify that the battery is properly connected.
3) Verify the battery level is at or above 13.8 VDC.

- ***Units only operate for a short period of time.***

1) Verify the unit has charged for 48 hours.
2) Allow the unit to fully charge to a nominal battery level of 13.8 VDC, then re-test. Charge for 48 hours.

- ***Lamp(s) does not energize when in emergency mode, but door rotates open.***

1. Remove lamp(s) and check lamp with resistance meter to verify condition.
2. Resistance indicates good lamp.
3. Open with no resistance indicates bad lamp. Replace lamp and re-test.

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Routine Care

The batteries used in this model are sealed and require no maintenance but will benefit from certain procedures. During routine standby operation, charger output fluctuates only slightly in floating the battery at its full-charge voltage. But, after an AC failure, and subsequent battery discharge, charger output increases greatly to re-charge the battery as quickly as cell temperatures rise and gas cycling considerations permit. This vigorous charging action also agitates the electrolyte and tends to reverse physical and chemical changes that can slowly occur in a battery which stands for a long period without cycling. It follows that if power failures are infrequent, occasional deliberate cycling may extend battery life.

Test Cycling

Every month, if there has been no power failure, press the unit test switch for 15 seconds. Once the switch is released, the battery will re-charge to full charge condition.

Conditioning Cycles

Once a year, if power failures have been infrequent or non-existent, perform a full battery conditioning cycle. De-energize the AC circuit to which the unit is connected and let the emergency lights operate for the period of operation for which the unit is listed. Then, restore AC power. This procedure puts the battery through a discharge/re-charge cycle over its full intended range and provides a rigorous test of overall unit operation.

Taking a Unit Out of Service

If a unit is to be deliberately taken out of service for an extended period, the battery lead should be disconnected from the charger so that the battery will go into storage in a fully charged condition.

Warranty

All Concealite fixtures are tested and are guaranteed to be free from defective materials and workmanship for a period of three years (3) from date of shipment, under normal operations and proper use. Correction of all defects shall be by replacement or repair (at our discretion) and shall constitute fulfillment of all manufacturer's obligations. We will not allow any charge for labor, materials, etc. that does not have our written approval before the work has begun. Damage incurred in handling or in transit is not covered. Any other warranty, expressed or implied, is hereby void. Modifications to the product or failure to follow these installation instructions will void the warranty.

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On-Site Painting Instructions

1. The door and frame of the unit have been treated with a factory powder-coated paint with a hard finish. This finish should be roughened with a coarse steel wool or sandpaper before a new finish is applied to ensure the paint adheres to the factory finish.
2. When the new finish is applied, extreme care should be taken that a seal is not formed between the door and the frame … which would prevent the door from opening. Also, assure that the paint is not so heavy that it runs into the gearing mechanism. This damage will void the warranty on the unit.
3. If the finish is sprayed on, we suggest that a thin cardboard or plastic strip be inserted between the door and the frame to prevent a paint seal from being formed.
4. After the new finish is applied, a sharp edge such as a single edge razor or utility knife may be inserted in the opening between the door and frame and run around the circumference of the unit to ensure that no seal has been formed. The finish should be completely dry before this step is performed.
5. If the unit is being covered with material (wallpaper, cloth, laminate, etc.), allow the mastic used to apply the covering to completely set up. Use a sharp edge such as single edge razor or a utility knife held at a 20 to 30-degree angle against the frame and run the blade around the frame. Repeat this procedure holding the edge against the door. This will provide a beveled edge that will prevent the material from fraying as the unit operates. Assure that the mastic adhesive does not run or be allowed to coat between door and frame, or this will void the warranty.

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Self-Diagnostic Option Features

The Self-Diagnostic (SD) option makes routine maintenance as effortless as looking at the diagnostic panel. The SD option automatically provides battery exercise and extended testing. The LED panel indicates specific component status. The SD option also allows maintenance personnel to monitor system status at a glance.

The Self-Diagnostic option provides the following features:

- Monthly battery exercise.
- Battery monitoring.
- Charger monitoring.
- Replacement battery indication.
- LED lamp status.

The SD option automatically cycles the unit every 24-30 days. While it is cycling, the monitoring circuits check the battery to ensure that it will deliver the power needed to maintain the load for a 1Z/x hours. The SD option does not use the lamps to test the battery; rather there is a predetermined resistive load within the option, thus avoiding lamp life reduction.

The SD option recognizes problems while the unit is in standby mode. During this period, the monitoring circuits check the charger voltage to see if an overcharge or undercharge is occurring. If an overcharge or undercharge exists, the fault indicator will illuminate.

The **yellow LED** indicates cycling and will only illuminate if the unit is self-testing. The LED stays lit for the duration of the test cycle, normally 15-20 minutes.

The **red LED** indicates a fault condition. The LED will illuminate and flash when a fault condition exists. The unit does not have to go through a cycle test to indicate a fault.

The **green LED** indicates charge and utility power. This LED is on during standby mode.

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The circuits always monitor the charger.

The test switch is used to test the unit at any time. When a fault condition occurs, the indicator will flash. Once the problem is corrected, the test switch is used to reset the SD circuit.

Self-Diagnostic (SD) System Operation and Troubleshooting Guide

The Self Diagnostic (SD) system automatically monitors both battery performance and electronic functions of an emergency lighting unit. Not using the emergency lights during this test greatly improves lamp life, thus increasing the possibility of proper lamp operation.

1) **SD System Operation** (refer to Chart 1 for LED description)
   a) Upon initial power up, the SD system will indicate a bad or unconnected battery termination. A flashing fault LED will remind the installer to connect the battery.
   b) During normal operation of the emergency lighting unit, the SD system will monitor the battery charger for proper operation. An over or under charge will be indicated by a flashing fault LED.
   c) The SD system automatically exercises the battery every 24 - 30 days. This test is indicated by having the "RX Mode" LED set to "on". A ten-minute discharge is performed by using a "dummy load". This exercise assures that the battery is performing properly. A fault LED will indicate if a battery is weak or dead.
2) **Troubleshooting Aid:** The following is a guide to determine the cause of a flashing fault LED. The following steps must be followed in sequence to properly determine the cause.

   Note: After each step, depress the test switch for approximately two (2) seconds to reset the SD system. If fault LED stays "off", the problem has been corrected. If not, proceed to the next step.

      a. Make sure battery connections are connected and free of corrosion … cleaning terminal if necessary.
      b. Measure battery voltage. It should be within the following limits:

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Battery Volts	12V
Low	9.60 +/- .10
High	14.40 +/- .10

If not within the limits:

a) Make sure that the charge LED is "on". If not, make sure that power is available to the unit.

b) If the battery voltage is low and charge LED is "on", replace the charger board.

c) If the battery voltage is high, consult the factory to determine if the charger is out of tolerance or the charger board is defective.

Reset SD system before performing this test. Fault LED must be "off". Discharge unit between 10 to 90 minutes by removing AC input. If during this test the fault LED flashes, the battery is weak. Replace battery and repeat test.

CHART 1

Yellow LED	SD Mode	Steady "on" when self-testing.
Red LED	Fault	Flashing when fault is determined.
Green LED	Charge	"on" when charger is charging.
	Test Switch	To test and reset SD Board.

Save These Instructions